

Amendment and Response  
Serial No. 10/522,264  
(National Phase of PCT/JP2004/007756)  
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### AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

#### Listing of Claims:

1. (Currently Amended) A semiconductor switch comprising:

a normally on type FET that passes a current between a drain and source thereof under zero state of a gate signal;

first and second normally off type FETs, each of which does not pass a current between a drain and source thereof under zero state of a gate signal, the first and second normally off type FETs being which are connected to the normally on type FET therebetween in series; and

control means operative to turn on and turn off the normally on type FET based on turning on or turning off the first and second normally off type FETs, the control means including:

a first diode having one electrode connected to a source of the first normally off type FET;

first current supply means for supplying a current to the first diode;

a second diode having one electrode connected to the source of the second normally off type FET and having the other electrode connected to the other electrode of the first diode; and

second current supply means for supplying a current to the second diode;

wherein a junction between the other electrode of the first diode and the other electrode of the second diode is connected to a gate of the normally on type FET.

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~~wherein the normally on type FET is connected between the first normally off type FET and the second normally off type FET.~~

2 - 5. (Cancelled)

6. (Currently Amended) The semiconductor switch according to claim 4 1, further comprising a direct current power supply by which a direct current is applied to the gate of the normally on type FET.

7. (Cancelled)

8. (Previously Presented) The semiconductor switch according to claim 1, wherein the normally on type FET includes a compound semiconductor and the first and second normally off type FETs include Si-semiconductor.

9. (Previously Presented) The semiconductor switch according to claim 1, wherein the normally on type FET includes a MES FET.

10. (Previously Presented) The semiconductor switch according to claim 1, wherein the normally on type FET includes a high voltage semiconductor FET and the first and second normally off type FETs include a FET with low voltage and low on-resistance.

11 - 13. (Cancelled)

14. (New) A semiconductor switch comprising:

a plurality of normally on type FETs connected in series, each of which passes a current between a drain and source thereof under zero state of a gate signal;

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first and second normally off type FETs, each of which does not pass a current between a drain and source thereof under zero state of a gate signal, the first and second normally off type FETs being connected to the plurality of normally on type FETs therebetween in series; and

control means operative to turn on and turn off the plurality of normally on type FETs based on turning on or turning off the first and second normally off type FETs, the control means including:

a first diode having one electrode connected to the source of the first normally off type FET;

first current supply means for supplying a current to the first diode;

a second diode having one electrode connected to the source of the second normally off type FET and having the other electrode connected to the other electrode of the first diode; and

second current supply means for supplying a current to the second diode,

wherein a junction between the other electrode of the first diode and the other electrode of the second diode is connected to the gates of the plurality of normally on type FETs.

15. (New) The semiconductor switch according to claim 14, further comprising a direct current power supply by which a direct current is applied to the gates of the plurality of normally on type FETs.

16. (New) The semiconductor switch according to claim 14, wherein the plurality of normally on type FETs include a compound semiconductor and the first and second normally off type FETs include Si-semiconductor.

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17. (New) The semiconductor switch according to claim 14, wherein the plurality of normally on type FETs includes a MES FET.

18. (New) The semiconductor switch according to claim 14, wherein the plurality of normally on type FETs includes a high voltage semiconductor FET and the first and second normally off type FETs include a FET with low voltage and low on-resistance.

19. (New) A semiconductor switch comprising:

a normally on type FET that passes a current between a drain and source thereof under zero state of a gate signal;

first and second normally off type FETs, each of which does not pass a current between a drain and source thereof under zero state of a gate signal, the first and second normally off type FETs being connected to the normally on type FET therebetween in series; and

control means operative to turn on and turn off the normally on type FET based on turning on or turning off the first and second normally off type FETs, the control means including:

a first diode having one electrode connected to the source of the first normally off type FET;

a second diode having one electrode connected to the source of the second normally off type FET and having the other electrode connected to the other electrode of the first diode;

a resistor connected between a junction between the other electrode of the first diode and the other electrode of the second diode and the gate of the normally on type FET;

a third diode connected between the gate of the normally on type FET and the gate of the first normally off type FET; and

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a fourth diode connected between the gate of the normally on type FET and the gate of the second normally off type FET.  
and

20. (New) The semiconductor switch according to claim 19, wherein the normally on type FET includes a compound semiconductor and the first and second normally off type FETs include Si-semiconductor.

21. (New) The semiconductor switch according to claim 19 wherein the normally on type FET includes a MES FET.

22. (New) The semiconductor switch according to claim 19 wherein the normally on type FET includes a high voltage semiconductor FET and the first and second normally off type FETs include a FET with low voltage and low on-resistance.

23. (New) A semiconductor switch comprising:

a plurality of normally on type FETs connected in series, each of which passes a current between a drain and source thereof under zero state of a gate signal;

first and second normally off type FETs, each of which does not passes a current between a drain and source thereof under zero state of a gate signal, the first and second normally off type FETs being connected to the plurality of normally on type FETs therebetween in series; and

control means operative to turn on and turn off the plurality of normally on type FETs based on turning on or turning off of the first and second normally off type FETs, the control means including:

a first diode having one electrode connected to the source of the first normally off type FET;

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a second diode having one electrode connected to the source of the second normally off type FET and having the other electrode connected to the other electrode of the first diode;

a resistor connected between a junction between the other electrode of the first diode and the other electrode of the second diode and the gates of the plurality of normally on type FETs;

a third diode connected between the gates of the plurality of normally on type FETs and the gate of the first normally off type FET; and

a fourth diode connected between the gates of the plurality of normally on type FETs and the gate of the second normally off type FET.

24. (New) The semiconductor switch according to claim 23, wherein the plurality of normally on type FETs includes a compound semiconductor and the first and second normally off type FETs include Si-semiconductor.

25. (New) The semiconductor switch according to claim 23, wherein the plurality of normally on type FETs includes a MES FET.

26. (New) The semiconductor switch according to claim 23, wherein the plurality of normally on type FETs includes a high voltage semiconductor FET and the first and second normally off type FETs include a FET with low voltage and low on-resistance.

27. (New) A semiconductor switch comprising:

a normally on type FET that passes a current between a drain and source thereof under zero state of a gate signal;

first and second normally off type FETs, each of which does not passes a current between a drain and source thereof under zero state of a gate signal, the first and second

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normally off type FETs being connected to the normally on type FET therebetween in series;  
and

control means operative to turn on and turn off the normally on type FET based on turning on or turning off of the first and second normally off type FETs, the control means including:

a first switch having a first electrode connected to the source of the first normally off type FET; and

a second switch having a third electrode connected to the source of the second normally off type FET and a fourth electrode connected to a second electrode of the first switch;

wherein a junction between the second electrode of the first switch and the fourth electrode of the second switch is connected to the gate of the normally on type FET;

whereby one of the first and second switches, which is connected to one of the first and second normally off type FETs of which source potential is low, is turned on whereas the other one of the first and second switches, which is connected to the other one of the first and second normally off type FETs of which source potential is high, is turned off.

28. (New) The semiconductor switch according to claim 27, wherein the normally on type FET includes a compound semiconductor and the first and second normally off type FETs include Si-semiconductor.

29. (New) The semiconductor switch according to claim 27, wherein the normally on type FET includes a MES FET.

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30. (New) The semiconductor switch according to claim 27, wherein the normally on type FET includes a high voltage semiconductor FET and the first and second normally off type FETs include a FET with low voltage and low on-resistance.

31. (New) A semiconductor switch comprising:

a plurality of normally on type FETs connected in series, each of which passes a current between a drain and source thereof under zero state of a gate signal;

first and second normally off type FETs, each of which does not passes a current between a drain and source thereof under zero state of a gate signal, the first and second normally off type FETs being connected to the plurality of normally on type FETs therebetween in series; and

control means operative to turn on and turn off the plurality of normally on type FETs based on turning on or turning off of the first and second normally off type FETs, the control means including:

a first switch having a first electrode connected to the source of the first normally off type FET; and

a second switch having a third electrode connected to the source of the second normally off type FET and a fourth electrode connected to a second electrode of the first switch;

wherein a junction between the second electrode of the first switch and the fourth electrode of the second switch is connected to the gates of the plurality of normally on type FETs;

whereby one of the first and second switches, which is connected to one of the first and second normally off type FETs of which source potential is low, is turned on whereas the other one of the first and second switches, which is connected to the other one of the first and second normally off type FETs of which source potential is high, is turned off.



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32. (New) The semiconductor switch according to claim 31, wherein the plurality of normally on type FETs includes a compound semiconductor and the first and second normally off type FETs include Si-semiconductor.

33. (New) The semiconductor switch according to claim 31, wherein the plurality of normally on type FETs includes a MES FET.

34. (New) The semiconductor switch according to claim 31, wherein the plurality of normally on type FETs includes a high voltage semiconductor FET and the first and second normally off type FETs include a FET with low voltage and low on-resistance.